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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/818,605	03/28/2001	Daisuke Kotake	2355.12119	1877

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EXAMINER

EDWARDS, PATRICK L

ART UNIT PAPER NUMBER

2621

DATE MAILED: 02/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/818,605	Applicant(s) KOTAKE ET AL.	
	Examiner Patrick L Edwards	Art Unit 2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4,5,12,15,16 and 23-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4,5,12,15,16 and 23-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11-24-2005 has been entered.

Response to Arguments

2. The applicant's arguments, filed on 11-24-2005, have been fully considered. A response to these arguments is provided below.

Claim Objections

Summary of Argument: Claims 1, 19, 23-24, and 26-29 were objected to in the previous office because of informalities. Applicant has cancelled claim 19, and amended the rest of the aforementioned claims to overcome the objections. Applicant argues that the objections should therefore be withdrawn.

Examiner's Response: The examiner agrees. The previous claim objections are hereby withdrawn.

35 USC 112 Second Paragraph Rejections

Summary of Argument: Claims 19-21 and 26-28 were previously rejected under 35 USC § 112(2) as being unclear as a result of grammatical errors. Applicant argues that the amendments that were made to overcome the claim objections should overcome the 112(2) rejections in the process.

Examiner's Response: The examiner agrees. The previous 112(2) rejections are hereby withdrawn.

Double Patenting

Summary of Argument: In the previous office, applicant was advised that if claims 1 and 25 were found allowable, claims 29 and 30 would be rejected under 37 CFR § 1.75 because of their substantial similarity to claims 1 and 25. Applicant has cancelled claims 29 and 30.

Examiner's Response: Applicant's cancellation of claims 29 and 30 has made this a moot issue.

Prior Art Rejections

Summary of Argument: Referring to independent claims 1, 12, 23, and 24, applicant argues that Laumeyer does not disclose extracting successive frame data whose position data nearly matches, and deleting all frame data of the extracted successive frame data except for one frame data (see remarks pg. 14).

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Referring to independent claims 25-28, applicant argues that Laumeyer fails to disclose comparing two pieces of frame data, determining whether the two pieces of frame data have been captured at a same position, and deleting frame data overlapping another piece of the extracted frame data (see remarks pg. 14).

Examiner's Response: Applicant's amended claims contain new limitations which have not yet been addressed. The claim limitations as a whole will be addressed below.

Claim Rejections - 35 USC § 101

3. 35 U.S.C 101 reads as follow:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 23 and 27 are rejected under 35 U.S.C 101 as being directed to non-statutory subject matter. As currently written, these claims recite purely functional descriptive material, which is non-statutory. This problem can be easily remedied by amending the preamble of the claims to recite "A computer executable program, stored on a computer readable medium, comprising:"

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 5, 12, 16, and 23-28 are rejected under 35 U.S.C. 103(a) as being anticipated by the combination of Laumeyer et al. (USPN 6,266,442 B1) and Hsu et al. (USPN 6,512,857).

With regard to claim 12, Laumeyer discloses holding plural pieces of frame data which constitute a moving image captured using a capture device mounted on a moving object (Laumeyer col. 11 lines 16-37: the reference discloses a frame buffer for holding frame data from the 'video capture' device mounted on a moving object. By definition, the video capture device captures plural pieces of frame data which constitute a moving image).

Laumeyer further discloses that this frame data is associated with a capture position, which is based on GPS (col. 5 lines 45-54 & col. 10 lines 34-39)

Laumeyer further discloses extracting successive frame data, whose position data nearly matches, from the plural pieces of frame data held by the holding means (see laumeyer col. 18 lines 25-29: the reference describes extracting the successive frame data (which is held in the frame buffer) whose position data nearly matches (the

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frames correspond to the same camera location coordinates (this is also clearly shown in figure 4, where it states that the frames are correlated by location))). This 'receiving' step from laumeyer corresponds to the claimed extraction step.

Laumeyer further discloses deleting all of the extracted frame data except for one frame (laumeyer col. 18 lines 35-42: the reference describes saving one of the extracted image frames (ie deleting all of the extracted frames except for one).

With regard to the final limitation of associating the non-deleted frame data with a position on a map based on the frame's associated position data, Laumeyer suggests that the invention can be used to assist in physical mapping (laumeyer col. 18 lines 10-15), but the reference is not drawn to the specifics of associating the frame data with a map. The Hsu reference, however, is specifically drawn to this subject matter and expressly discloses the limitation of associating non-deleted frame data with a position on a map based on the frame's associated position data (Hsu col. 1 lines 28-39 & col. 3 line 54 – col. 4 line 34). It would have been obvious to one reasonably skilled in the art at the time of the invention to modify laumeyer's image processing method by associating the captured frames with a position on a map as taught by Hsu. Such a modification would have allowed for the laumeyer invention to be applied to the field of physical mapping (laumeyer col. 18 lines 10-15).

With regard to claim 16, Laumeyer discloses a setting means for setting sampling intervals of frame data (col. 5 lines 32-33). Laumeyer discloses a camera with a frame rate. Inherent in any camera with a given frame rate is a setting means for setting the frame rate. For any given frame rate (set by a setting means), the sampling interval (distance between captured frames) will vary proportionally with the driving speed. For example, the sampling interval of a capture device with a given frame rate will increase with increased driving speed and decrease with decreased driving speed. As a result, we can conclude that Laumeyer inherently teaches a setting means for setting the sampling interval. Laumeyer further discloses an extraction means which extracts two images (frame data) which have a corresponding location (col. 18 lines 25-29 and Figure 4). Since these locations are equivalent, it follows that the position data distance is shorter than the sampling interval distance.

With regard to claim 26, Laumeyer further discloses a determination means for comparing two pieces of frame data and determining whether or not the two pieces of frame data have been captured at the same position (Figure 4). Figure 4 shows correlating frame data based on location. Correlating frame data based on location as disclosed in Laumeyer qualifies as determining whether or not two pieces of frame data have been captured at the same position as recited in the claim. Laumeyer further discloses extracting the frame data that the determination means determines has been captured at the same position (Figure 4).

Further referring to claim 26, Laumeyer fails to expressly disclose making the above determination by computing a least squares error between two pieces of frame data.

Hsu, however, discloses computing the least squares error between two pieces of frame data (Hsu column 10 lines 5-23). The video frame image and reference frame image disclosed in Hsu are analogous to the two pieces of frame data as recited in the claim. It would have been obvious to one reasonably skilled in the art at the time of the invention to modify Laumeyer's image capture location matching system to include that a relative distance

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between two image frames is computed using a least squares error method as taught by Hsu. Such a modification would have allowed for a system that could match image capture locations that were very similar but not exactly the same. This would have made for a more flexible and robust system.

With regard to claims 1, 5, and 25, Laumeyer discloses an apparatus for performing the method of claims 12, 16, and 26 (see figures 3b and 5).

With regard to claims 23 and 27, a computer-executable program comprising code which causes the computer to execute the steps of a method is essential if the image processing method disclosed in Laumeyer and Hsu is to function. Therefore, a computer-executable program is inherent in these teachings

With regard to claims 24 and 28, a storage medium that stores a computer-executable program which causes the computer to execute the steps of a method is essential if the image processing method disclosed in Laumeyer and Hsu is to function. Therefore, a storage medium is inherent in these teachings.

7. Claims 4 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Laumeyer and Hsu as applied above, and further in view of Hsieh et al. (USPN 6,011,558). The arguments as to the relevance of Laumeyer and Hsu as applied above are incorporated herein.

With regard to claim 15, Laumeyer further discloses that the holding means holds frame data of moving images captured with a plurality of moving capture devices mounted on the moving object (Laumeyer, figs 3a and 3a).

Referring to the added limitation of generating panoramic images from the framed data captured by the plurality of capture devices, Laumeyer discloses capturing frame data with a plurality of capture devices as is discussed above. But laumeyer fails to expressly disclose generating panoramic images from the captured image data. Hsieh, however, discloses the limitation of generating panoramic images from captured images (Hsieh col. 2 lines 13-15). It would have been obvious to one reasonably skilled in the art at the time of the invention to modify the image processing method disclosed in the combination of Laumeyer and Hsu by generating a panoramic scene from the captured images as taught by Hsieh. Such a modification would have allowed for utilization of panoramic image maps in a variety of different applications such as movie special effects, virtual reality, games, or any other of a plurality of applications (Hsieh col. 1 lines 22-25).

With regard to claim 4, Laumeyer discloses an apparatus for performing the method of claim 15 (see figures 3b and 5).

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick L Edwards whose telephone number is (703) 305-6301. The examiner can normally be reached on 8:30am - 5:00pm M-F.

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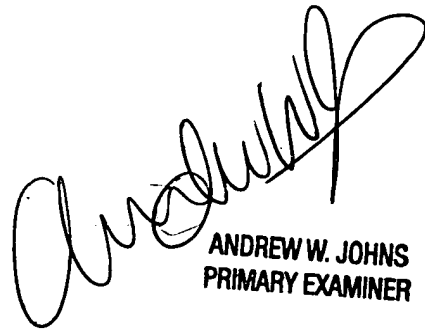
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached at (703)308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patrick L Edwards

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ANDREW W. JOHNS
PRIMARY EXAMINER